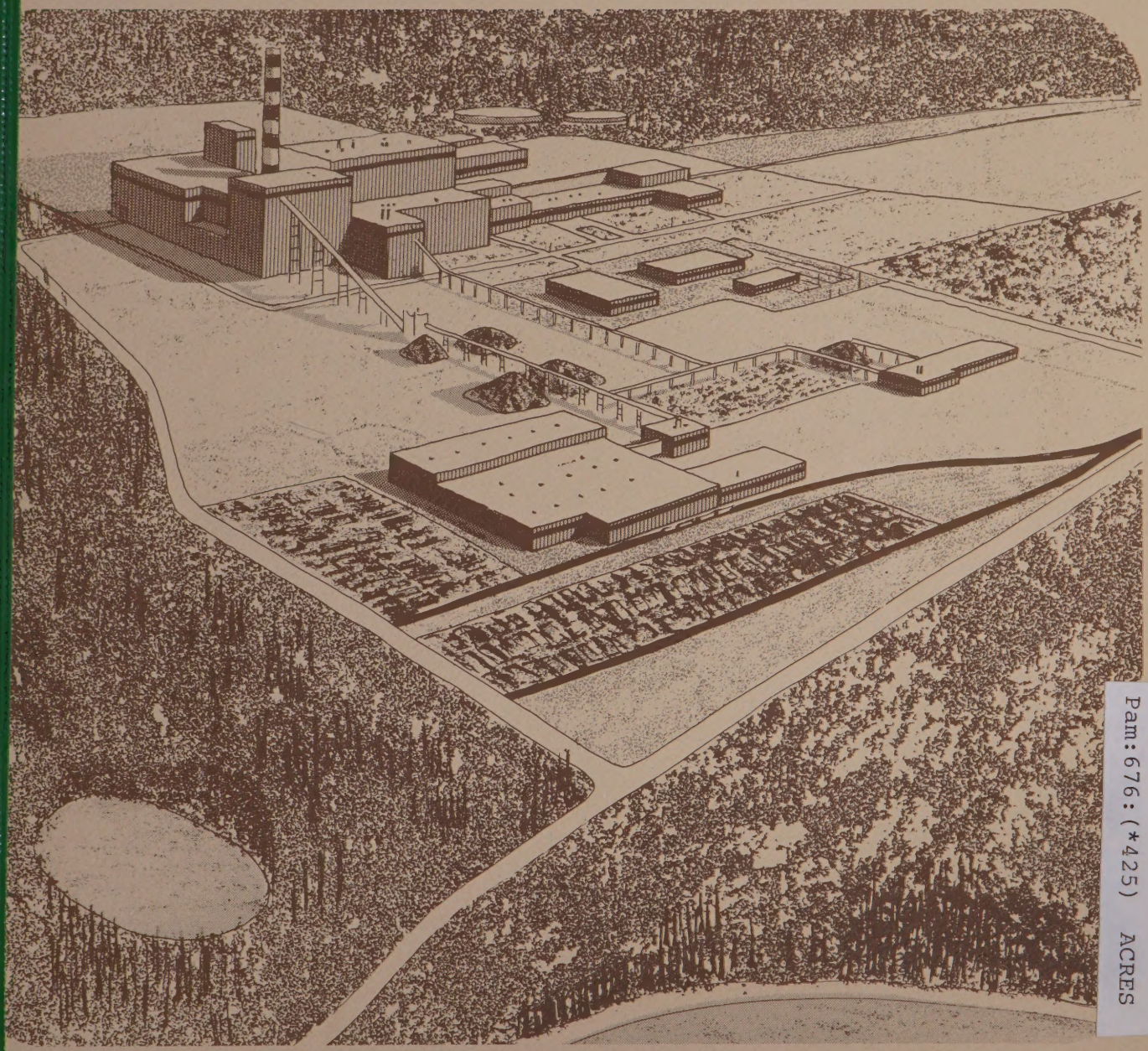
# Reed Paper Ltd.
# Integrated Forest Products Complex
# Ear Falls/Red Lake Area

# Summary of Environmental Assessment and Site Recommendation Report

December 1976

Based on a study by
Acres Consulting Services Limited



Above is an artist's conception of how a modern pulp mill and sawmill complex in the Ear Falls/ Red Lake area of Northwestern Ontario might appear, with possible start-up in 1985. Currently, detailed engineering work on the design of such a complex has not been begun.

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# reface

he following has been prepared for Reed Paper Ltd. and s principal operating subsidiary Reed Ltd., as part of a ommunications program to inform the public about Reed's roposals for an integrated forest products complex in the ar Falls/Red Lake area of Northwestern Ontario. It hould be stressed that this proposal is in the feasibility tudy stage, and that Reed has made no decision to proceed ith such a project.

his summary is based upon an environmental assessment nd site recommendation report prepared for Reed Paper y Acres Consulting Services Limited, Toronto, Ontario. opies of the report by Acres have been distributed to a umber of federal, provincial and local government epartments and agencies and other interested parties, and ade available to the public in a number of libraries hroughout the province.

The complete technical report is the work of a team of highly qualified professionals, representing many disciplines. Abridging such a complex report to create a document that is both accurate and meaningful for distribution to a wide audience is a difficult task. For this reason, considerable care has been taken with this summary.

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*December 1976*

# Introduction

In March 1974, the directors of Anglo-Canadian Pulp and Paper Mills, Limited — a subsidiary of Reed Paper Ltd. — authorized an extensive feasibility study of a proposal to build a modern integrated forest products complex in Northwestern Ontario. This followed a request made of all forest products companies in Ontario to inform the provincial Government of their plans for expansion.

Reed's initial interest in a new forest products complex for Northwestern Ontario was based on a number of factors. The company has managed timber limits in the Ear Falls/Red Lake area for a number of years, to support its Dryden, Ontario pulp and paper mill, and believed that the forest north and east of that area had sufficient fibre to support another mill complex. Also, Reed recognized that bleached northern softwood kraft pulp is a premium product which will have a relatively firm market. In the longer term, demand for this type of high-quality pulp is expected to increase steadily, which implies that mills capable of producing this fibre will have relatively stable operating rates and enhanced economic viability. In order to fully utilize the available fibre, it was decided to market as much as possible of the wood as lumber, with the balance being chipped for use as a fibre source for a pulp mill. In addition, it was felt that an integrated forest products complex would provide a stable source of employment, based upon a renewable resource, and thus assist government programs to develop the economic and social well-being of the area.

As part of its feasibility study, Reed commissioned Jaakko Pöyry & Co Oy for the conceptual process design of a pulp mill/sawmill complex which would be environmentally sound. It then commissioned Acres Consulting Services Limited to recommend a suitable site for such a complex, and to assess the environmental impact of the complex.

On October 26, 1976, a Memorandum of Understanding concerning the feasibility study for such a complex was signed by the Government of Ontario and by Reed Ltd., the proponent of the undertaking. The Memorandum indicates that the Ontario Ministry of Natural Resources will conduct a detailed forest inventory on a tract of land in Northwestern Ontario comprising 18,983 square miles (see map at the conclusion of this summary). This tract, referred to in this summary as the Forest Study Area, is estimated to comprise about 12,242 square miles of productive lands and about 6,741 square miles of unproductive lands. The Government expects that the detailed inventory of the Forest Study Area will be completed by the summer of 1978.

The Memorandum also stipulates that Reed will be prepared for public hearings concerning its proposal before the Environmental Assessment Board by July 1, 1977.

It further stipulates that the studies and plans relating to the proposed project will be designed to achieve the optimum utilization of the forest; increase the forest's growth potential; improve the standard of forest protection; conform with the Province's plans for the economic development of Northwestern Ontario; enhance the recreation potential and protect the fish and wildlife resources; and improve the employment opportunities of the local inhabitants, placing particular emphasis on meeting the economic and social aspirations of the native people of the region.

Full copies of the Memorandum of Understanding will be made available by Reed upon request.

Although the project is defined to include timber harvesting, a detailed environmental assessment of the effects of this activity does not form part of Acres' report. Such an assessment can be carried out only after the completion by the Government of Ontario of the detailed forestry inventory and associated investigations of the Forest Study Area. However, Acres' report does include evaluations of the effects of the project on the socio-economic environment related to the Forest Study Area.

Based upon its current estimates and plans, and upon the advice and recommendations of its consultants, Reed is proposing to build a kraft pulp mill and sawmill complex at a site on the Wenasaga River about four miles northeast of Ear Falls, Ontario. It proposes a pulp mill with a capacity of 1,200 tons per day, and a sawmill with an initial design capacity of 180 million board feet of lumber annually. It estimates that such a complex would cost approximately $400 million, and would provide about 1,200 direct jobs, resulting in a conservatively estimated annual payroll of $17 million (1976 dollars). In addition, it expects that a further 700 indirect jobs would be created. In summary, it believes these employment opportunities would be of significant benefit to residents of the region, including the native people who reside in Red Lake, Ear Falls and surrounding communities and in the Forest Study Area.

Reed thus believes that the proposed new forest products complex would yield substantial economic benefits to the people of Northwestern Ontario, to the province generally, and to Canada. It further believes that these benefits can be attained with relatively minor impacts on the natural environment.

However, the management and directors of Reed have made no decision to proceed with this project. A decision to proceed or not must be based upon further study of all relevant factors, including financing and market demand, as well as those factors considered at length in the Environmental Assessment and Site Recommendation Report by Acres Consulting Services, and following all necessary approvals stipulated in the Memorandum of Understanding. Reed believes that 1985 is the earliest date it could start operations of a new pulp mill.

## Company profile

Reed Ltd., the project proponent, is the principal operating subsidiary of Reed Paper Ltd. Reed Paper is a major Canadian company with wide experience in the pulp and paper industry. Reed operates a newsprint, paperboard, and sulphite pulp mill in Quebec City, Quebec, and a kraft pulp and paper mill in Dryden, Ontario. Softwood dimension lumber is produced in a sawmill near Dryden. The companies which formed the nucleus of the present Reed organization have operated pulp mills and managed forestry operations under Crown supervision in both Ontario and Quebec for more than half a century.

Reed is a diversified forest products and decorative products company which conducts business through five business Groups — Pulp and Paper; Forestry and Wood Products; Packaging; Decorative Products; and Technical — as well as a Pigments Division. In addition, Reed Paper owns Reed Lumber Company Ltd., a distributor of lumber and building products. Reed also has investments in the pulp, paper, and lumber industries in British Columbia through Prince George Pulp and Paper Limited and Intercontinental Pulp Company Ltd., and their subsidiaries Takla Logging Company Limited and Takla Forest Products Limited. Total sales of Reed in 1975 — excluding the sales of the Joint Venture Companies in B.C. — approximated $370 million.

Reed manufactures and markets paper and plastic bags, folding boxes, and corrugated containers. It has packaging plants in Winnipeg, Toronto, Montreal, and Minneapolis/St. Paul, Minnesota. In 1976 Reed started up an 86,000-ton-per-year linerboard mill in Mississauga, Ont. to manufacture linerboard for the packaging industry. The main raw material for this mill is recycled corrugated containers.

In the field of chemicals, Reed is the leading Canadian manufacturer of lignosulphonate specialty chemicals, which are made from the waste liquor of the sulphite pulping process. These chemicals are used as animal feedstuff binders, dye dispersants, and in various other applications. At Dryden, Reed manufactures chlorine, caustic soda, sodium chlorate, tall oil, and turpentine. In the Toronto area, the company is also a major manufacturer and distributor of pigments that are used in the production of paints, inks, and plastics.

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Reed has major operations in the decorative products field. It has divisions which produce and distribute furniture, fabrics (including custom draperies), and paint, and is a major wallcoverings manufacturer and distributor in both Canada and the U.S.

The Reed Technical Group employs a large staff of engineers, researchers, and other technical experts, and includes the company's Environmental Affairs Department.

Reed Paper Ltd. is a public company, with its voting preferred shares traded on the Toronto and Montreal stock exchanges. Reed International Limited of London, England owns none of Reed Paper's preferred shares, and more than 99% of its common shares, which are not available for public trading. In sum, this means that Reed International owns approximately 86% of the voting shares of Reed Paper. Reed International is active in pulp and paper, building products, publishing, and decorative products throughout the world. The stated intention of the company is to increase significantly the Canadian public's ownership of Reed Paper shares.

## Concept

The fundamental philosophy which has guided the process design for the proposed project can be defined in terms of two principal objectives:

1. The project is to utilize available fibre on a sustained yield basis. This implies the co-ordination of harvesting, regeneration and forest management to ensure that wood is available to support the complex in perpetuity. As much as possible of the wood will be marketed as lumber, while the balance will be chipped for use as a fibre source for the pulp mill.

2. The mill process is to utilize the best proven technology consistent with conditions in Northwestern Ontario. This implies the reduction of liquid effluent contaminants, odor and air emissions to the lowest levels feasible at this time. It also implies the provision of the best possible working environment for employees.

Reed is committed to the principles of environmental protection through all phases of the project, from site selection, mill conception and planning, construction, and forest management planning, through to manufacturing and harvesting operations.

## Scope of the project

*The principal components of the proposed project are:*
1. An adequate supply of suitable fibre from the Forest Study Area.

2. A new kraft pulp mill with capacity of approximately 1,200 tons per day.

3. A new sawmill (one which can produce softwood lumber in a variety of dimensions), with a capacity of approximately 180 million board feet per year, completely integrated with the pulp mill complex. The Memorandum of Understanding also provides for study of a further 100 million board feet of sawmilling capacity, which Reed would contemplate when all forest management studies have been completed.

**Cost of the project**
The project is estimated to cost some $400 million.

**Marketing of products**
Reed Paper Ltd. has extensive experience in the marketing of pulp and newsprint; it currently sells the majority of its output through long-term sales agreements. It expects that the pulp manufactured by the proposed Ear Falls/Red Lake mill would be sold through such long-term contracts.

Most of the pulp and lumber produced by the development would be exported, and thus would be of significant benefit to Canada's foreign trade performance. The pulp would be marketed by Reed's existing organization; the lumber would be marketed through expansion of Reed's lumber sales organization and utilization of Reed Lumber Company distribution skills.

The market opportunity which created Reed's original interest in the expansion of its production of market pulp was the forecast growth in requirements for softwood kraft fibre in North America and throughout the world. This demand is expected to become greater, because potential free world production sites are limited, as are companies with the capital and marketing strengths necessary to bring new sources of supply into existence.

## Project consultants

Two consulting organizations were commissioned for preliminary studies for the proposed complex:

— Jaakko Pöyry & Co Oy, Helsinki, Finland, for the pulp mill and associated sawmill. These conceptual studies encompass all aspects of the pulping process, including waste treatment and emission and effluent control.

— Acres Consulting Services Limited, Toronto, Canada, for the selection of the most suitable mill site and the preparation of an assessment of the environmental effects of the complex.

Jaakko Pöyry & Co Oy is an independent engineering organization rendering a complete range of services to forest-based industries. Services offered include forest surveys and management plans, feasibility investigations, project management, complete engineering and detailed designs, and mill start-ups.

The company has completed pulp and paper mill projects encompassing total engineering and mill start-up in several countries, including the Skagsagarnas Industri AB mill at Varo, Sweden, a 300,000-ton-per-year bleached kraft pulp mill. At present, Jaakko Pöyry is carrying out the complete engineering of several projects, including bleached kraft pulp mills for Aracruz Celulose S.A., Brazil (440,000 tons per year) and Oy Metsa-Botnia Ab, Finland (275,000 tons per year).

Acres Consulting Services Limited is a leading international consulting organization founded in Canada in 1924. Services are provided in engineering, planning, and management for a wide variety of project fields, including heavy industrial, oil and gas pipelines, transportation, power generation and distribution, and environmental engineering. To meet the need for environmental assessment of major projects, Acres' traditional engineering disciplines have been expanded over the past seven years to include professionals in biology, chemistry, ecology, recreation, and urban planning. Acres has completed environmental studies for several Canadian and international clients, including Environment Canada and the World Bank.

## Project description

Design of the proposed project is conceptual. While some minor variations may be anticipated during the detailed design and equipment selection stages, the philosophy adopted for the design is the practical application of the best proven technology currently available. The consultants for the mill's conceptual design, Jaakko Pöyry & Co Oy, were selected because of their demonstrated performance in designing environmentally sound, efficient, modern pulp mills.

The recommended area of 650 acres chosen for the mill would allow freedom in positioning mill components and minimizing noise disturbance. The mill fence would be about 1,500 feet from the buildings, and a buffer zone of about 3,500 feet is planned to provide further separation between the mill and other land uses. Thus, there would be about one mile separating the mill buildings from other land uses.

**1. Pulp mill**
The pulp mill has a design capacity of 1,200 tons per day of bleached kraft pulp, made from softwoods and hardwoods.

The operators would control the processes from centralized sound-proof and air-conditioned control rooms with the aid of closed-circuit television and small dedicated computers.

**2. Sawmill and woodroom**
The sawmill complex consists of the sawmill and the woodroom. This complex produces lumber and supplies the chips, pulpwood and pulpable residues to the pulp mill, and other residues to the energy-conversion units. The wood preparation facilities will have a design capacity of 745,000 cunits per year of pulp logs and sawlogs. (A cunit is 100 cubic feet of solid wood, excluding bark.) The design capacity of the sawmill is 180 million board feet per year.

The control operators would be located in sound-proof, air-conditioned rooms. Closed-circuit television systems are planned to provide the best control view for the operators, to co-ordinate operations.

**3. Forest Study Area**
Timber for the proposed pulp mill and sawmill would be drawn from the Forest Study Area to the north and east of the present Reed limits in the Ear Falls/Red Lake area.

This area has not been licensed or operated before, and contains extensive stands of mature and over-mature timber. Until recently, limited fire protection has been provided over the major portion of the area, and there have been some extensive fires. The western portion contains substantial stands of pine, while the eastern portion runs more heavily to spruce.

The company would pay stumpage dues, ground rents, and forest protection charges of nearly $5 million annually to the Ontario Government. As the first step in preparing a comprehensive forest management plan, a detailed forest inventory will be provided by the Ministry of Natural Resources. Under this plan, the timber would be harvested in an environmentally sound manner and on a "sustained yield" basis. This means that the allowable annual cut from the limits would equal the proven growth potential of the forest, after making adequate allowances for losses caused by fire, wind, insects, and disease. The Crown has agreed to provide the same standard of forest protection for the Forest Study Area as is provided for licensed Crown land in Ontario.

Forest harvesting operations on large Crown timber licenses in Ontario are carried out under management and operating plans approved by the Ministry of Natural Resources, and prepared by the licensee to conform with all pertinent regulations, instructions and guidelines under The Crown Timber Act. During the preparation and execution of management plans, close co-operation is maintained between the professional forestry staff of a licensee and the supervisory personnel of the Ministry of Natural Resources, who are responsible for ensuring that sound forest management practices are promoted.

## Job creation

**1. Direct employment**
The proposed project would create direct forest industry employment of about 1,200 jobs as follows:

| | |
|---|---|
| Pulp mill | 400 |
| Sawmill and woodroom | 200 |
| Woodlands | 600 |
| **Total** | 1,200 |

Since these jobs would be based on a managed renewable resource, they would provide a stable source of employment.

Further, these jobs would be created in the Ear Falls/Red Lake area, which is designated by the provincial Government as a growth centre. This development, therefore, would contribute substantially to the goal of 4,000 to 5,000 new jobs in the pulp and paper industry between 1971 and 1991, as set out in the Ontario Government's socio-economic study "Design for Development: Northwestern Ontario Phase II." At the same time, the project would assist the federal Department of Regional Economic Expansion in meeting its goal of creating permanent employment in this region.

Annual salaries and wages of 1,200 new Reed employees are conservatively estimated to exceed $17 million. The project would offer opportunities to the native people of the area to enter the wage economy indirectly as suppliers of goods and services, or directly through employment in the woodlands operations or in the mills.

**2. Indirect employment**
The creation of 1,200 additional primary jobs resulting from the proposed project would have a multiplier effect on new employment opportunities in directly related service industries in the Ear Falls/Red Lake area.

Analysis indicates that the employment increase would be in the basic/non-basic ratio of 1:0.60. Thus the 1,200 new jobs would generate some 700 jobs in the non-basic industries. Many of these jobs would be created in the retail trade sector, the construction sector, and the commerce, business, and personal services sector. Many of these positions would offer increased employment for women, for whom job opportunities now are limited.

## Site selection

The design and siting of the proposed complex have been chosen to reflect a concern for the ecology of the region and the desire of most northern residents to maintain the quality of life they enjoy.

A prime consideration in site selection was the provision of an adequate water supply for the mill. This is essential for mill make-up water and to allow reception of treated effluents, with minimum ecological impact. The catchment boundary between streams flowing northeast to Hudson Bay and those flowing west and southwest passes through the central part of the Forest Study Area. This topographical feature restricts locations with an adequate water supply to those at the eastern and western boundaries of the Area. These coincide with the two established surface access routes to the Area. Thus, the two alternative areas or "corridors" available for the mill site are:
— A western corridor comprising the Ear Falls/Red Lake area; and
— An eastern corridor comprising the Lake St. Joseph/Pickle Lake area.

Fourteen potential sites — seven in each corridor — were defined in the initial reconnaissance, and reduced to four sites — two in each corridor — following investigation and analysis. The two sites in the western corridor were subsequently favored because of the current lower costs for services (rail line, gas supply, electricity), better infrastructure and water supply, and the lower probability of adverse ecological impacts.

**1. Reasons for selecting site**
Two sites in the western corridor, Site A on the Chukuni River 30 miles northwest of Ear Falls, and Site B on the Wenasaga River four miles northeast of Ear Falls, were examined in greater detail.

Site B (near Ear Falls) was selected as the most suitable site for the pulp mill complex by considerations of water supply, ecology, geology (mill foundations), transportation and power facilities, housing, and community development.

*A. Water supply and ecology*
The estimated minimum flow at Site A (Chukuni River) is 280 cubic feet per second (cfs), and at Site B (Wenasaga River) is 200 cfs. Thus, each site has an adequate water supply to meet the mill requirement of 38 cfs. However, in selecting the most suitable site, it was also necessary to consider the ultimate disposal of treated effluents.

In selecting Site B (near Ear Falls), provision is made in the design of the complex to pipe waste effluents about five miles to the English River. The discharge point will be as close to the Ear Falls dam as possible, and downstream from the water intake for the Town of Ear Falls, as well as downstream from the local beach.

The magnitude of the aquatic impact is governed largely by the dilution capability of the receiving stream and its capacity to assimilate effluents. The Chukuni River at Site A has a dilution capability at low flow of about 7.5:1, compared with 51:1 in the English River at Site B. The higher assimilative capacity at Site B is judged to result in a relatively minor impact on aquatic ecology, being largely confined to the deposition of minor amounts of suspended solids and a small lowering of the dissolved oxygen level in the English River. By comparison, significant impacts are anticipated for a complex located at Site A.

Impacts on the terrestrial ecology are similar for the two sites and are discussed later in this summary.

*B. Geology*
Geological conditions at the two sites are quite similar, but Site B offers more space and slightly better foundation conditions. There are no known mineral deposits or patented mining claims in the area of either Site A or Site B which would have any effect on plant location.

*C. Transportation and power facilities*
The cost of providing rail, highway, natural gas, and electric power services to the two sites favor Site B by a margin of about $10 million. The principal component of the cost difference is for rail service.

*D. Community development*
The project will affect location and quality of housing, employment for native people, supply of community services, and educational facilities.

Generally, the impacts on these factors are similar for Sites A and B. As a result of the project, the population in the Ear Falls/Red Lake area would be expected to increase by roughly 5,000. Since about half the labor force would be mill crews and the balance woodlands crews, it is expected that residential distribution would be spread over the entire area and would not be concentrated in one location. Communities in the area have plans for expansion.

**2. New facilities required to service recommended site**

*A. Electric transmission line*
A new 230-kilovolt transmission line would be required to connect Site B to Dryden, a distance of 64 miles. Total estimated electrical power consumption is 53 megawatts (Mw), of which about 37 Mw can be generated within the complex, leaving a balance of 16 Mw required from public utilities.

*B. Natural gas pipeline*
A short spur from the existing 8-inch line to Bruce Lake would be required. Natural gas consumption is estimated to be 5.5 million cubic feet per day, after allowance for use of internally generated energy. When natural gas is not available (about 180 days per year), the equivalent heat input would be generated from liquid and/or solid fuel alternatives.

*C. Railway*
A four-mile spur from the existing line to Bruce Lake and a new link from Dryden (CPR) to the existing CNR branch line which connects Amesdale to Ear Falls, would be required.

*D. Highway to mill site*
A short access road to the site from Highway 105 would be required. A new road, five miles long, to join Highway 105 about three miles north of Ear Falls, would be the best alternative.

## Ecological considerations and safeguards

The guiding philosophy behind this proposal has been to utilize the best practical demonstrated technology and equipment available, consistent with conditions in Northwestern Ontario. The process incorporates the maximum feasible degree of recycling of process chemicals to minimize loss of potential contaminants. In addition, all gaseous emissions and liquid effluents would receive comprehensive treatment before release. The mill complex design complies with the applicable standards of the Ontario Ministry of the Environment for liquid effluents, gaseous emissions, and noise.

**1. Environmental protection features**
Emphasis has been placed on containing potential pollutants in the process to minimize product losses and reduce the need for external treatment. Specific in-plant features which serve these purposes would include:

— Reduction of woodroom liquid wastes through the use of dry barking.
— Steam stripping of evaporator and other condensates to remove toxic and odorous compounds and B.O.D. (bio-chemical oxygen demand. This refers to the "demand" for oxygen which certain organic substances have when placed in water systems. A reduction in B.O.D. means that organic wastes require less oxygen from a water system.)
— Reduction of suspended solids losses and water usage in the bleach plant through the use of counter-current washing.
— Minimization of process chemical losses through the provision of collection facilities and spare recovery capacity to handle flow surges.

Wastes containing suspended solids would be segregated according to their acidity, and treated in separate clarifiers. B.O.D. - containing wastes without suspended solids are combined with the overflows from the clarifiers and, after pH adjustment, the waste is given secondary treatment. The clarifiers and the secondary treatment facility are sized to allow a 50% increase in flow while maintaining design performance. Clean cooling water would be mixed with the treated effluent before being conveyed via pipeline to the vicinity of the Ear Falls Dam.

No mercury will be used in any part of the mill process.

**2. Water**

The site proposed for the pulp mill is located about one mile from the shore of Wenasaga Lake and four miles from the shore of Lac Seul. It is proposed that water supply for the mill be taken from Wenasaga Lake, and mill effluents be piped to the English River, as close to the Ear Falls dam as possible, and downstream from the Ear Falls public water supply intake and downstream from the local beach. Effluent would be discharged so as to ensure rapid and complete mixing with the receiving water.

**3. Air quality**

The method chosen by the process consultants to deal with malodorous gases by incineration results in the gases' conversion to other, less odorous sulphur compounds. Sulphur dioxide and hydrogen sulphide are the principal gases remaining, and concentrations of both are expected to be below the odor threshold. Under normal circumstances, the only odor resulting from the mill should occur in localized areas near the mill, due to infrequent escape of gases from the collection system and from low-level emissions of minor quantities of these gases.

The impact of the stack discharge from the mill on the environment has been examined by computer simulation. Projected ground-level concentrations under normal climatic conditions are well below harmful levels. Records show that northeast winds blow about 10% of the time. Some of these occasions may give some effect in Ear Falls, most likely a slight odor. Stack emissions thus will have little impact on Ear Falls.

**4. Solid wastes**

The most significant solid waste that would be generated in the pulp mill and sawmill complex is bark, which would be burned in the power boiler. Residual process solid wastes, including boiler ash, are estimated to require about 15 acre-feet of space at a landfill site per year. The principal impact due to solid wastes would be commitment of land to sanitary landfill use. Contamination of groundwater from leachate is not expected to be a problem, since aquifers (sub-surface water-bearing zones) in the area tend to be discontinuous and relatively impermeable. Geotechnical investigations associated with landfill site selection will reveal whether the possibility of excessive seepage losses exists. If necessary, leachate would be collected and treated.

**5. Noise**

Noise levels produced by the mill at the property boundary are calculated to be well within the Ontario guidelines. Hence, ambient noise levels in the Town of Ear Falls, some four miles away, are expected to be well below the desirable maximum levels at all times.

Logging truck traffic generated by the mill would increase noise above existing levels. To minimize this effect, it is proposed to direct as much traffic as possible away from the residential areas. A diversion road connecting the proposed mill to Highway 105 would keep most logging trucks approaching from the north at least three miles away from the town of Ear Falls.

The estimated peak noise levels from trucks turning off Highway 105 is within the Ontario night-time guideline of 40 dBA at the townsite.

**6. Wildlife**

The overall impacts of the proposed mill on the water quality and aquatic life of the receiving water are expected to be small. The treated effluents would cause a small lowering (less than 0.5 parts per million) of the dissolved oxygen content in the English River system, and the river color would be changed slightly.

Suspended solids escaping from the biological treatment system would not settle readily, and are not expected to cause undesirable bottom deposits. No adverse impact on aquatic life is expected.

The small overall impact is due to the comprehensive in-plant treatment of wastes, combined with the very large dilution capability of the English River. No significant effects upon terrestrial plants or animals are expected from air emissions.

The most significant effect of the project on wildlife will arise from increased human activity and more particularly, from increased game resource exploitation. In the Ear Falls/Red Lake area, moose already are being overharvested and stricter government controls may be required to alleviate the situation. Hunting pressure on small game birds (mainly grouse) is now light. Water fowl hunting in the area is also small. Increased hunting pressure on these birds should not have any significant effect.

In the case of terrestrial birds, including non-migratory game birds, the increased human activity could prove beneficial. Any forested areas cut to provide access roads will create increased edge habitat which could lead to an increase in the diversity of bird species, and greater abundance of perching birds. Impact on eagles, an endangered species, is expected to be minimal.

There will be added fishing pressure on the lakes and streams because of the influx of people into the area. There is no indication of overfishing now, so it is reasonable to expect that the local sport fisheries can support more fishing effort without adverse impact. Commercial fishing and trapping will not be affected.

**7. Site preparation**
During the plant construction phase, environmental considerations will be a major factor in maintaining a clean operation and minimizing ecological disturbance.

## Construction phase

The proposed project is now in the conceptual design and feasibility stages, and only preliminary planning of construction has been undertaken.

The preliminary schedule for the proposed mill construction is:

| | |
|---|---|
| Site preparation beginning | 1981-2 |
| Civil works beginning | 1982 |
| Equipment installation beginning | 1983 |
| Substantial completion of major pulp mill buildings | 1983-84 |
| Start operations | 1985 |

The labor force required for construction is expected to reach a peak of 1,400, with an average of about 1,000 during the three-year construction period. These labor totals include skilled, unskilled, supervisory, clerical, and engineering categories. Suitably qualified local people would be eligible for employment during construction and for employment in the mill after its completion.

The construction camp would be complete with power, light, water, sewage, and garbage disposal facilities. Sewage disposal facilities would be designed to meet the effluent standards of the Ontario Ministry of the Environment.

Well-designed portable units with washroom facilities would be provided for living quarters, with additional units for laundry, cafeteria, commissary, medical, and recreational facitilies.

Catering would be contracted to an established industrial catering contractor. The camp also would have parking facilities, security and guard service, and fire-protection services.

A substantial part of the total project cost of some $400 million would be spent in the local region during the construction period. For example, wages and salaries of site labor, including supervision, are estimated to be $45 million, while building supplies and related civil works approximate $115 million. The balance of $240 million comprises equipment, including piping and electrical supply, engineering, and overhead costs.

## Community impact

Reed Paper Ltd. recognizes that the proposed project would have a significant socio-economic impact on the communities most involved, and it considers that the overall impact would be highly favorable.

**1. Population projections**
The Ear Falls/Red Lake area has a population of about 6,000 people, most of whom live in the three major municipalities of Red Lake, Ear Falls, and Balmertown.

If Reed proceeds with the proposed complex, population growth in the area would be approximately 5,000 people. It is expected that this would be distributed throughout the area, since about half the labor force would comprise mill crews and the balance would comprise woodlands crews. Thus, it is expected that employees and their families would choose to live in a number of locations throughout the area.

This would mean that several communities would share the expansion of facilities to accommodate the population increase, which would provide for more balanced growth.

Note that the population and housing projection may be modified downward to reflect the extent to which native people take advantage of the employment opportunities available, and choose to live outside the urban communities.

In general, a population increase of approximately 5,000 people means that the community infrastructure will become more developed as the increased population can support (and thus justify) more infrastructure. This would result in an improved level of public services, with a fuller range of goods and services available to the area.

An area population of 11,000 people should create sufficient demand for the full-time services of additional professional people, including optometrists, lawyers, dentists, and certain medical specialists. Also, a larger population can support improvements in the existing transportation, educational, communications, and recreational facilities.

**2. Housing needs**

There is a current shortage of housing in the Ear Falls/Red Lake area with an unsatisfied demand of up to 300 units.

The proposed project would come on line in 1985 and would require an estimated 1,200 housing units as follows:

| | |
|---|---|
| Houses/apartments | 660 |
| Mobile homes | 120 |
| Single accommodation | 420 |
| **Total** | 1,200 |

Also, there would be a housing demand created by personnel employed in the service industries which would be established as a result of the proposed project. This demand is estimated to be about 300 to 400 units.

In summary, the existing housing demand requires about 300 housing units, while the proposed new complex and the supporting service industries require up to 1,600 housing units. Municipal expansion plans call for the development of approximately 1,100 lots, which leaves a requirement for up to 800 lots in addition to current expansion plans.

In order to quantify housing needs, this comparison of housing demand and lot availability has equated one residential lot with one housing unit. Housing units include single accommodation and apartments, which can provide many housing units with a small number of residential housing lots. Hence, the actual number of lots required may be less than the 800 indicated above. Nevertheless, it is anticipated that all available lots in Red Lake/Balmertown would be required for the new complex, even though the mill site is near Ear Falls, and additional land must be serviced in Ear Falls to meet the expected demand.

Reed recognizes the importance of adequate housing and plans to co-operate with and encourage the appropriate town councils, government departments, and private investors in securing the required housing facilities.

**3. School requirements**

A population increase of 5,000 people is estimated to result in an additional 1,000 elementary students and 375 high school students.

In the Ear Falls/Red Lake area, the unutilized school capacity could handle approximately 500 students for elementary schools and 50 students for high school. Thus, additional classroom facilities would be required for both elementary and high school students. Ear Falls requires 300 to 350 students before a high school can be justified.

At present, 150 high school students from the Ear Falls area attend school in Red Lake. The increased high school population in the Ear Falls/Red Lake area, as a result of the project, would require operation of the Red Lake school at capacity and probably would justify a new high school in Ear Falls.

Educational facilities (1974)

| School | Class-rooms | Enrol-ment | Capa-city | Per cent Capacity |
|---|---|---|---|---|
| Red Lake Elementary | 14 | 357 | 475 | 75 |
| Madsen | 6 | 81 | 210 | 39 |
| Balmertown | 10 | 301 | 350 | 86 |
| Cochenour | 6 | 107 | 210 | 51 |
| Ear Falls Elementary (2) | — | 425 | 500* | 85 |
| Red Lake High School | 19 | 449 | 500 | 90 |

*estimate

**4. Hospital services**

The Margaret Cochenour Memorial Hospital, the only hospital in the area, is located in the Town of Red Lake. A modern structure, it serves about 6,000 people in the area in addition to the northern reserves. In 1974 the hospital had 46 beds with existing services for approximately 70 beds. Average occupancy was approximately 65%.

The hospital has a staff of 28, including six doctors. Doctors service offices in Cochenour, Balmertown, and Madsen. Ear Falls has a medical centre with a full-time resident doctor.

The present hospital facilities, with some increase in hospital personnel and equipment, are expected to be adequate to meet the needs of the additional population generated by the proposed development.

**5. Native people**
The size of the potential labor force of native people in the area surrounding the proposed complex is significant. About 20% of the population of Red Lake consists of native people. In total the native population includes about 1,700 men between 18 and 65 who live in the Forest Study Area and the surrounding region (the Sioux Lookout District).

Three reserves are located within the Forest Study Area — Pikangikum, Cat Lake and Osnaburgh — with a total population of 1,900 people (December 1973) of which 400 are men between the ages of 18 and 65. Their principal activities are seasonal, and include commercial fishing and trapping, some wild rice harvesting, and some service employement (fire fighting, tree planting, etc). The federal Department of Indian and Northern Affairs estimates that more than 75% of the employable population of these three reserves cannot find jobs. Reed therefore believes that these residents could benefit from the increased employment opportunities offered by the proposed project.

Reed's policy is to provide employment opportunities for native people. Approximately 70 native people are now employed in Reed's Dryden woodlands operations and the Colenso sawmill, out of approximately 400 employees.

Reed will co-operate with the native councils and all levels of government in the development of programs that are acceptable to the native people and which will enable the native residents to profit from the employment opportunities that would result from this project. The details of the programs which will ensure participation in this project must be developed by the native people themselves, in co-operation with the relevant government departments and agencies, and Reed.

**6. Industrial diversification**
As a result of the proposed project, the economic base of the Ear Falls/Red Lake area would be broadened and diversified, which would lead to greater stability and a more secure future for the area's residents.

The communities in the Ear Falls/Red Lake area owe their existence to the mining industry, dating back to the discovery of gold in the Red Lake district in the 1920s, and to the more recent development of mining of iron ore and other metals.

In the forest industry, Reed now has three cutting operations located in Ear Falls. These employ about 100 men and cut sawlogs for the Colenso sawmill at Red Lake Road and pulpwood for the Dryden mill.

The major benefit of diversification into forest products in the Ear Falls/Red Lake area would be a less transient population as alternative job opportunities become available in the area. This, in turn, would be reflected in a larger and more skilled work force which should assist in providing a remedy for the labor shortage problems that most mining companies in the Ear Falls/Red Lake area are experiencing. There could be an additional positive impact on the mining industry if the advent of logging roads increases exploration activities or makes it feasible to open a mine in a new area.

"The Design for Development" report of the Ontario Government (1970) recommended that, if economically feasible, the Ear Falls/Red Lake area should be given consideration for an integrated wood-using development. The proposed project would accomplish this objective.

**7. Tourism**
The tourism industry is economically important in the area, which has attractive hunting and fishing opportunities. About 90% of visitors are from the United States. There are eight fly-in lodges and 24 outpost camps in the Forest Study Area. There are, in addition, many lodges close to the highways leading to Red Lake.

In the immediate area of Ear Falls there are 12 lodges which are likely to experience increased summer business as the town grows. There will, for example, be increased business for motel/hotel operators catering to visitors on business or family trips. The population increase also will provide an increased local demand for fishing and hunting supplies and facilities.

Logging roads would create access to lakes which formerly had been inaccessible by road, and such facilities will not attract the type of clientele willing to pay for the privilege of a fly-in vacation. The owners of these facilities will probably diversify their business or, since most outpost camps are not permanent, they would move to a lake which is not accessible by road.

These lodges, and outpost camps, however, will not be affected immediately. It will be years, if not decades, before the cutting operations reach most of the existing facilities.

The access roads will provide new areas into which the tourist industry can expand. Historically, practically all the access for recreational use of the forest has been provided as a by-product of logging operations. Local residents and visitors can look forward to greatly expanded recreational possibilities as a result of this project.

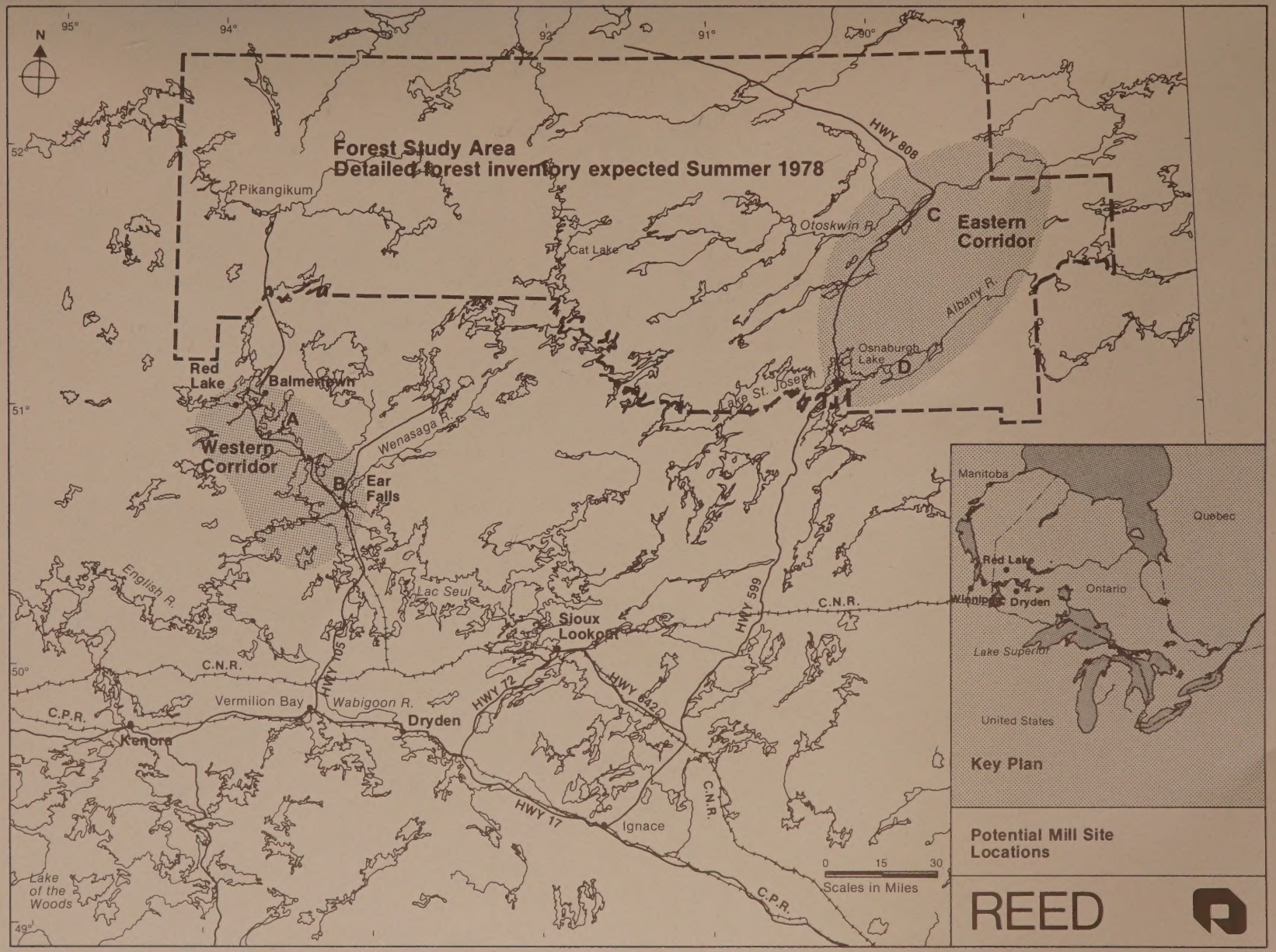
The charter air industry, centred mainly in Red Lake, also could benefit from increased tourism.

**8. Public expenditure**
Provision of an adequate community infrastructure to sustain the development will require an investment of public monies.

However, public revenues will be generated by the project. The company will pay stumpage fees, forest protection and management charges to the Ontario Ministry of Natural Resources, plus corporate income taxes and municipal taxes. Reed employees would pay personal income taxes and provincial sales taxes in amounts ranging from $3 million to $5 million annually.

# Conclusion

The proposed forest products complex would yield substantial economic benefits to the people of the Ear Falls/Red Lake area, and to the surrounding region. These benefits can be attained with relatively minor impacts on the natural environment.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Forest Study Area
Detailed forest inventory expected Summer 1978
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Red Lake
Balmertown
A
Western Corridor
B
Ear Falls
Wenasaga R.
English R.
Lac Seul
Cat Lake
Otoskwin R.
C
Eastern Corridor
HWY 808
Albany R.
Osnaburgh Lake
D
Lake St. Joseph
Sioux Lookout
HWY 599
C.N.R.
HWY 105
HWY 72
HWY 642
Vermilion Bay
Wabigoon R.
Dryden
Kenora
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Potential Mill Site Locations
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